3M™ Multi-Touch Display User Guide

For the Product Line:
C2167PW

Read and understand all safety information contained in this document before using this product.

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CHAPTER 1

Introduction

Overview

Congratulations on the purchase of your 3M™ Multi-Touch Chassis Display. This guide describes how to set up your Multi-Touch Chassis Display.

The 3M™ Multi-Touch Chassis Displays, available in 21.5 inch display sizes, are an ideal solution for kiosk applications that require the modern flat front surface design and Multi touch gesture performance found in popular smart phone and tablet devices today. These displays, specifically designed for kiosk and enclosure integrations, feature a unique flat-front surface ready design to allow for easy integration and upgrading current kiosk designs. In addition, the chemically-strengthened glass and anti-glare treatment are an ideal combination to support heavy-use public applications while maintaining the kiosk's functional, optical, and aesthetic characteristics.

Multi-Touch Display Features

- Direct Analog signal input
- Digital signal input
- Active matrix TFT LCD technology
- Max Resolution:
  21.5 inch display -- 1920 x 1080
- Viewable display area

  21.5 inch display -- 476.064mm x 267.768mm

- Horizontal frequency range:
  21.5 inch display -- 31.47 ~ 82.3 kHz
- Vertical frequency range:
  21.5 inch displays -- 56 ~ 75 Hz high refresh rate
- Pixel pitch
  21.5 inch display -- 0.24795mm x 0.24795mm
- Auto adjustment function
- Multilingual OSD user controls
- VESA mount
  21.5 inch display -- 100mm x 100mm
- Bracket or VESA mount
- Projected capacitive touch screen with USB controller

Touch Screen for Multi-Touch Displays

- Projected capacitive touch screen for finger input only
- Surface: Anti-glare treatment
- Interface: USB controller
- Transmittance: 90±5%
- HID: Windows® 7
- Driver: 3M™ MicroTouch™ MT 7 Software

Important Safety Information

Read and understand all safety information before using this product. Follow all instructions marked on the product and described in this document. Pay close attention to the following installation warnings and safety precautions.

Intended Use
The 3M Multi-Touch Display was designed for touch input and tested to replace an existing display. These displays are intended for indoor use only and are not designed for use in hazardous locations.

Explanation of Signal Word Consequences
⚠ **DANGER:** Indicates a potentially hazardous situation, which, if not avoided, will cause death or serious injury and/or property damage. ⚠ **WARNING:** Indicates a potentially hazardous situation, which, if not avoided, could cause death or serious injury and/or property damage. ⚠ **CAUTION:** Indicates a potentially hazardous situation, which, if not avoided, may cause minor or moderate injury and/or property damage. **NOTICE:** Indicates a potentially hazardous situation, which, if not avoided, may cause property damage.

⚠ DANGER

To avoid the risk of fire and/or explosion which will cause serious injury or death:

- Do not install or use this product in a hazardous location.

⚠ WARNING

To reduce the risk of fire and/or explosion or electric shock which could cause death or serious injury and/or property damage:

- Do not use this product in any outdoor environment unless NEMA standards (or similar standards such as IP rating) are followed.

To avoid the risk of electric shock which could cause serious injury or death:

- Do not remove the cover or back of the display. The LCD inverter operates at hazardous voltages. The power supply AC line should be avoided.
- Plug power cord into appropriate grounded power source.
- Do not use a power cord that is frayed or otherwise damaged.
- Do not service the display yourself. There are no user serviceable parts inside. Refer all servicing to qualified service personnel. Any change or modification to the equipment not expressly approved by the party responsible for compliance could void your authority to operate such equipment.
- Do not use a damaged display or power supply.
- Do not use a substitute DC power adapter. Use only the DC adapter provided for the display.
- Do not use non-conforming replacement parts.
- Do not place wet or damp objects on the display.
- Do not expose the display to rain or other sources of water, steam, or moisture.
- Do not place foreign objects on the display or its cables.
- Ensure that connecting the unit to the power source will not overload the power source.

⚠ CAUTION

To avoid the risk of impact injury which may cause minor or moderate injury or property damage:

Do not use a mounting arm with this display unless it is a U.L. Listed type arm with a rated load greater than the weight of display.

To avoid the risk of glass breakage which may cause minor or moderate injury:

- To avoid risk of injury when handling the display be aware that the sensor edges may be sharp.
- Handle the display with care to avoid breaking the touch sensor. The display contains glass parts. Dropping the display may cause the glass parts to break.
- Ensure mounting screws are tightened fully to prevent instability.
- Do not place foreign objects on the display.
- Do not use a visibly damaged or broken sensor.
- Ensure that mounting the unit will not adversely affect the stability of the end equipment when installing in free standing equipment or using the VESA mount.

To avoid the potentially hazardous situations associated with the use of isopropyl alcohol or other solvents for cleaning which may cause minor or moderate injury or property damage:

- Follow all instructions and recommendations in the manufacturer's Material Safety Data Sheet and product label.
- Be sure to follow solvent manufacturer's precautions and directions for use when

⚠ CAUTION
using any solvents. • It is important to avoid using any caustic chemicals on the touch sensor.
To avoid possible environmental contamination which may cause minor or moderate injury: • The LCD lamps inside this product contain mercury (Hg). This product may contain other electronic waste that can be hazardous if not disposed of properly. Recycle or dispose in accordance with local, state, or federal laws. For more information, contact the Electronic Industries Alliance at www.eiae.org. For lamp specific disposal information, check with www.lamprecycle.org. For more information, call 3M Touch Systems at 1-866-407-6666. • Dispose of the flat panel display, power adaptor and electronics, according to applicable governmental regulations.
To reduce the risk of muscle strain related to accessibility which may cause minor or moderate injury and/or property damage: • Do not install the monitor in a manner or location with awkward accessibility. Extended use may cause muscle, tendon, or fixed posture strains. It is recommended you take periodic breaks from continuous use.

NOTICE
• You are notified that any change or modification to the equipment not expressly approved by the party responsible for compliance could void your authority to operate such equipment.
• Do not use longer screws as they could potentially damage electronics inside the display.

Important Notes

- In extreme temperature and humidity situations, you may observe condensation between the touch screen and the display. To minimize this condition, place the unit where it will be used and allow a 24-hour environmental stabilization period prior to powering on the display. Any noticeable condensation is temporary and will have no long term affect on the operation of the display.
- When unplugging power supply cord, hold the plug, do not pull by the cord.
- Do not connect or disconnect this product during an electrical storm.
- Install the display in a well-ventilated area. Always maintain adequate ventilation to protect the display from overheating and to ensure reliable and continued operation.
- Do not expose this display to direct sunlight or heat. Passive heat may cause damage to the housing and other parts.
- An inherent characteristic of the PCT sensor is a fine grid pattern that may be visible under certain lighting conditions.
- Do not install this display in areas where extreme vibrations may be generated. For example, nearby manufacturing equipment may produce strong vibrations. The vibrations may cause the display to exhibit picture discoloration or poor video quality.

Maintaining Your Touch Display

To maintain your display and keep your display operating at peak performance:

- Keep your display and touch sensor clean.
- Adjust the display video controls.
- Do not install the display in a place where ventilation may be hindered. Always maintain adequate ventilation to protect the display from overheating and to promote reliable and continued operation.

Touch Sensor Care and Cleaning

The touch sensor requires very little maintenance. 3M Touch Systems recommends that you periodically clean the glass touch sensor surface. Be sure to turn off your display before cleaning.

Typically, an isopropyl alcohol and water solution ratio of 50:50 is the best cleaning agent for your touch sensor.

- Apply the cleaner with a soft, lint-free cloth. Avoid using gritty cloths.
- Always dampen the cloth and then clean the sensor. Be sure to spray the cleaning liquid onto the cloth, not the sensor, so that drips do not seep inside the display or stain the bezel.

⚠ CAUTION

To avoid the potentially hazardous situations associated with the use of alcohol or other solvents which may cause minor or moderate injury or property damage:

- Follow all instructions and recommendations in the manufacturer's Material Safety Data Sheet and product label.
- Be sure to follow solvent manufacturer's precautions and directions for use when using any solvents
- It is important to avoid using any caustic chemicals on the touch sensor.

3M Touch Systems Support Services

3M Touch Systems, Inc. provides extensive support services through our website and technical support organization. Visit the 3M Touch Systems website at http://www.3m.com/touch/, where you can download software and drivers, obtain regularly updated technical documentation on 3M Touch Systems products, and learn more about our company.

Whenever you contact Technical Support, please provide the following information:

- Touch display size, part number and serial number
- Current driver version
- Operating system used
- Information on additional peripherals

Technical Support is available Monday through Friday 8:30 a.m. to 5:30 p.m. with limited call back service after 5:30 p.m. until 8:00 p.m. US Eastern Standard Time – 9 a.m. to 5 p.m. throughout Europe.

You can contact 3M Touch Systems, Inc. Technical Support (US only -- Eastern Standard Time) by calling the hot line, sending email or a fax.

- Technical Support Hot Line: 978-659-9200
- Technical Support Fax: 978-659-9400
- Toll Free: 1-866-407-6666 (Option 3)
- Email: US-TS-techsupport@mmm.com

Contact 3M Touch Systems

Contact information for all offices can be found on our website at: http://www.3m.com/touch/

CHAPTER 2

Setting Up Your Multi-Touch Chassis Display

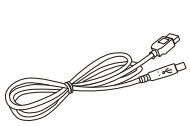
This chapter describes how to set up your 3M Touch Systems Multi-Touch Chassis Display. You need to complete the following tasks:

- Unpack the components
- Connect the video cable, touch display USB cables, and power cable
- Power on the display and test your setup
- If you are not running Windows® 7 (or Tablet PC), install software from the enclosed CD.

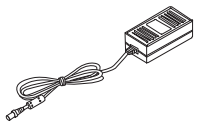
Unpacking Your Touch Display

Carefully unpack the carton and inspect the contents. Your Multi-Touch Chassis Display includes the following cables and accessories:

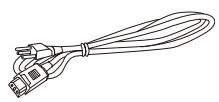
- USB communication cable
- VGA video cables
- DVI video cables
- Power cable and DC power supply
- Touch documentation and driver CD
- Hardware kit -- 4 mounting brackets and (8) M4x8 screws



USB cable

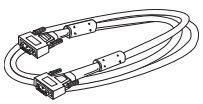


DC power supply

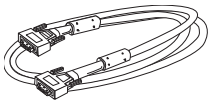


Power cable

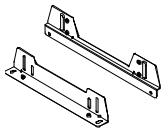
Remote key (sold separately)



VGA cable

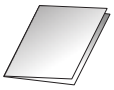


DVI cable



Side brackets

8 (M4X8) Screws



Quick Start Guide

Touch Driver CD

Multi-Touch Chassis Display Dimensions

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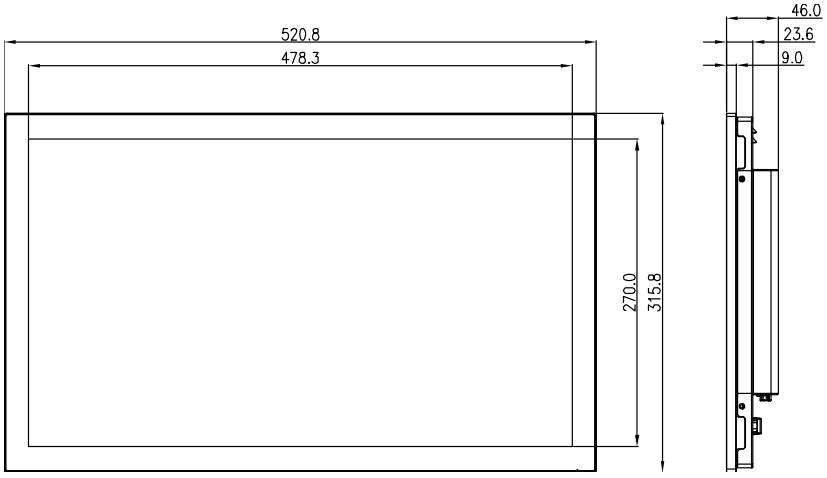
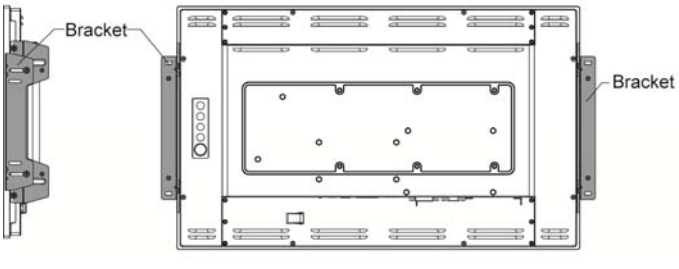


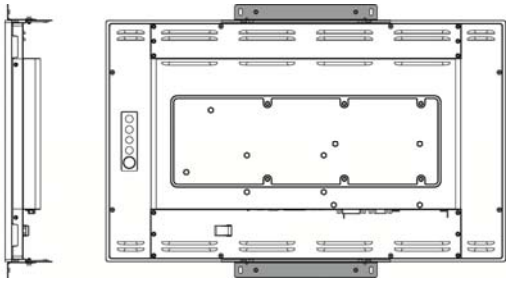
Attaching the Side Brackets

Depending on your mounting scheme, you may use the side brackets to mount your displays onto your wall or device. Find a suitable location for attaching side brackets.

Note: You will need a screwdriver to attach the side brackets. Your touch monitor includes four side brackets (and eight screws, M4x8). This equipment is intended to be mounted in accordance with the proper hardware and the installation instructions supplied with the product. Use of mounting brackets or screws other than those specified in the installation instructions may cause a hazard.



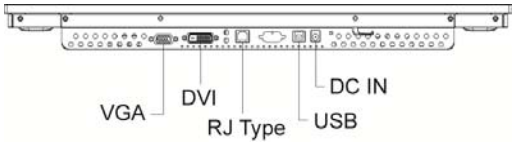
Top and bottom brackets



Left and right side brackets

Connecting the Display

To setup this display, please refer to the following figures and procedures.



- Be sure all equipment is turned off.
- Connect the DC adapter to the power connector (DC IN) on the monitor and the other end into an electrical outlet.
- Connect the D-SUB cable from the display's VGA input connector to the D-SUB connector of your host computer and tighten the screws.
- Connect the DVI cable from the display's DVI input to the DVI connector of your host computer and tighten the screws.
- Connect the USB cable from the USB port of your display to the USB port of your computer.
- Configure the touch screen. Refer to the "Touch Screen Driver Installation" section.
- Once the touch screen is configured, the monitor is ready for use.
- Connect the remote control cable to RJ-type port (optional). Don't connect telephone or internet cable to RJ-type port. Adapter rating is 12Vdc 3A minimum, marked with LPS.

Note: To ensure the LCD display works well with your computer, please configure the display mode of your graphics card to make it less than or equal to 1920 x 1020 resolution and make sure the timing of the display mode is compatible with the LCD display.

⚠ WARNING

To avoid the risk of electric shock which could cause serious injury or death:

- Plug power cord into appropriate grounded power source.
- Do not use a power cord that is frayed or otherwise damaged.
- Do not use a damaged display or power supply.
- Do not use a substitute DC power adapter. Use only the DC adapter provided for the display.
- Do not use non-conforming replacement parts..

Supported Video Display Modes and Refresh Rates

Your video card should support one of the display modes specified below. If you select an unsupported video mode, the display may stop working or display unsatisfactory picture quality.

Display Mode	Refresh Rate (Hz)
640 x 480	60, 66, 72, 75
720 x 400	70
800 x 600	56, 60, 72, 75
832 x 624	75
1024 x 768	60, 70, 75
1152 x 864	75
1280 x 960	60
1280 x 1024	60, 75
1440 x 900	60, 75
1680 x 1050	60
1920 x 1080	60

Configuring the Display Settings

After you connect your Multi-Touch Chassis Display and turn on your computer, you may need to configure one or more of these display settings. The ideal setting for the Multi-Touch Chassis Display is as follows:

- Display mode (also called desktop area or video native resolution) less than or equal to 1920 x 1080 resolution
- Refresh rate (also called vertical scan rate or vertical sync) 60 Hz
- Color depth (also called color palette or number of colors) at least 16-bit (high color)

Adjusting the Multi-Touch Chassis Video Display

This section provides guidelines for adjusting the video display and using the display controls to adjust the image to your liking. The controls for adjusting the video display are located on the back of the Multi-Touch Chassis Display. These buttons let you display the on-screen menu and adjust the phase, image position, contrast, and brightness. Before you make any adjustments:

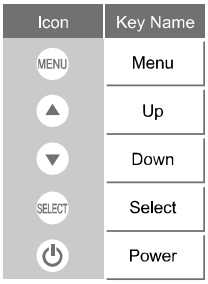
- Be sure to adjust the controls in your normal lighting conditions.
- Display a test image or pattern whenever you adjust the video.

User Controls For On Screen Display

Your Multi-Touch Chassis Display has five controls for adjusting the video display.

Key/OSD	Menu Off Status	Menu On Status
Menu	Menu appear	Menu disappear/return to main item
Up	Brightness	Main item select up/Adjust up
Down	Contrast	Main item select down/Adjust down
Select	Enter/Select sub-item function	
Power	Power On/Off	

How to Use the OSD Menus



1. Press the **MENU** button to pop up the on-screen menu and press **Up** or **Down** button to select among the five functions in the main menus.
2. Choose the adjustment items by pressing the **Select** button.
3. Adjust the value of the adjustment items by pressing the **Up** or **Down** button.
4. With the OSD menu on screen, press the **Menu** button to return main menu or exit OSD.
5. The OSD menu will automatically close if you have left it idle for a pre-set time.
6. To Lock the OSD / Power menu buttons, please follow the instructions below. (Please note: the monitor has to be turned ON with a valid signal pre-set).
   a. Press **Menu** key, the OSD menu will appear.
   b. Press and hold the **Menu** key again with the OSD menu on the screen, the OSD menu will disappear. Then press the **Power** key once while the menu key is still being pressed. The **Lock/Unlock** menu will appear for 3 seconds.
   c. Use the **Select** key to select OSD or Power setting then set at **Lock** by pushing the **Up** or **Down** button.
   d. When the **Up** or **Down** button is released, the previous setting will be saved and exit the **Lock/Unlock** menu automatically.
7. To Unlock the OSD / Power menu buttons, please follow the instructions below. Please note: the monitor has to be turned ON with a valid signal pre-set.
   a. Press and hold the **Menu** key then press the **Power** key simultaneously and the **Lock/Unlock** menu will appear for 3 seconds.
   b. Use the **Select** key to select OSD or Power setting then set at **Unlock** by pushing the **Up** or **Down** button.
   c. When the **Up** or **Down** button is released, the previous setting will be saved and exit the **Lock/Unlock** menu automatically.

Note:

- When the OSD Lock Function is selected, this indicates that all the buttons except **Power** are now disabled.
- When the Power Lock function is selected, this indicates that the power key is disabled; user cannot turn off the monitor using the **Power** key.

On-Screen Display Menus

Item	Content
Contrast	The monitor luminance level control.

Brightness	The monitor backlight level control.
Auto Adjust	Fine-tune the image to full screen automatically.
Left/Right	Moving screen image horizontal position to left or right.
Up/Down	Moving screen image vertical position to up or down.
Horizontal size	The screen image horizontal dot clock adjustment.
Fine	The screen image pixel phase adjustment.
OSD Left/Right	Moving OSD menu horizontal position to left or right.
OSD Up/Down	Moving OSD menu vertical position to up or down.
OSD Time out	OSD auto-disappear time selection.
OSD Language	OSD menu language selection. (English, French, Japanese, German, Spanish, Italian, Traditional Chinese and Simplified Chinese)
Factory Reset	Factory default value restored.
RGB	Color temperature selection (9300K, 6500K, 5500K, 7500K, User)

CHAPTER 3

Troubleshooting Your Multi-Touch Chassis Display

If you are experiencing trouble with the LCD display, refer to the following. If the problem persists, please refer to the 3M Touch Systems website at www.3m.com/touch.

No image appears on screen.

- Check that all the I/O and power connectors are correctly and securely connected as described in the "Installation" section.
- Make sure the connector pins are not crooked or broken.

Partial image or incorrectly displayed image.

- Check to see if the resolution of your computer is higher than that of the LCD display.
- Reconfigure the resolution of your computer to make it less than or equal to 1920 x 1080 recommended resolution.

Image has vertical flickering line bars.

- Use “Fine” to make an adjustment.
- Check and reconfigure the display mode of the vertical refresh rate of your graphic card to make it compatible with the LCD display.

Image is unstable and flickering

- Use “Fine” to make an adjustment.

Image is scrolling

- Check and make sure the VGA/DVI signal cable (or adapter) is securely connected.
- Check and reconfigure the display mode of the vertical refresh rate of your graphics card to make it compatible with the LCD display.

Vague image (characters and graphics)

- Use “Fine” to make an adjustment. If this problem still persists, use “Horizontal size” to make an adjustment.

Error Messages

If you see error messages on your LCD screen, this means that the LCD display cannot receive a clean signal from the computer graphics card. Below are the basic error messages.

Pressing Menu will pull up the On Screen Display (OSD) menus to control the Picture, Color, Display, OSD Settings, and Setup.

Please refer to the 3M Touch Systems website at www.3m.com/touch for additional information.

No Signal

The LCD display has been powered on but cannot receive any signal from the computer graphics card. Check all the power switches, power cables, and VGA/DVI signal cable.

Going to Sleep

The LCD display is in power save mode. In addition, the LCD display will enter power save mode when experiencing a sudden signal disconnect. The monitor can be activated by pressing any key, clicking the mouse or touching the screen.

Out of Range

The signal of the computer graphic card is not compatible with the LCD display. When the signal is not included in the “Video Display Modes” listed in Chapter 2 of this manual, the LCD monitor will display this message.

CHAPTER 4

Enabling Your Multi-Touch Chassis Display

Windows™ 7 USB Compatibility

3M multi-touch technology works seamlessly with the Windows™ 7 operating system. The Multi-Touch display supports USB HID for direct communication. The Multi-Touch Chassis Display leverages all the multi-touch functionality that is native to Windows™ 7. Plug the display in to a system running Windows™ 7 and you'll quickly enter the world of true multi-touch functionality.

The Multi-Touch Chassis Display is compatible with Windows 7 with no additional software. Refer to Microsoft's Windows 7 documentation for additional information.

All Other Platforms

When using a Windows™ 7 serial connection or for Windows XP, Vista or Linux operating systems (either USB or serial), 3M provides MicroTouch MT 7 Software for multi-touch drivers. This guide includes information for writing your own drivers to interface with the 3M Multi-Touch Technology.

For non-Windows 7 operating system users this document provides the communication protocol necessary to talk directly with the electronics. This enables software developers using other operating systems such as Microsoft Windows™ Vista or Linux® to write their own drivers and achieve the same multi-touch results.

Multi-Touch Application Support

Remember not all applications are multi-touch ready -- Multi-touch behavior is a function of YOUR application. Check with your application vendor to determine if your software has multi-touch capability.

Installing 3M™ MicroTouch™ Software

Remember that Windows™ 7 does not require any additional software to enable multi-touch functionality.

However, for Windows™ XP, Vista or Linux® operating systems, 3M™ MicroTouch™ Software enables your Multi-Touch Chassis Display to work with your computer. 3M™ MicroTouch™ Software includes a control panel for setting your touch sensor preferences and a diagnostic utility. If you are experiencing problems with the touch sensor, you can use the diagnostic utilities provided to test the system.

For more information on installing this software and using the control panel, refer to the 3M™ MicroTouch™ Software User Guide on the accompanying CD or on the corporate website at www.3m.com/touch.

CHAPTER 5

Regulatory Information

Regulatory Agency Approvals

Your product complies with the following regulatory standards:

- FCC-B
- CE
- UL
- RoHS/WEEE directives

This equipment has been tested and found to comply within limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Move the equipment away from the receiver.
- Consult the dealer or an experienced radio/television technician for additional suggestions.

NOTICE
You are notified that any change or modification to the equipment not expressly approved by the party responsible for compliance could void your authority to operate such equipment.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

This device complies with Part 15 of the FCC rules: Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Warning

To assure continued FCC compliance, the user must use grounded power supply cord and the provided shielded video interface cable with bonded ferrite cores. If a BNC cable is going to be used, use only a shielded BNC(5) cable. Also, any unauthorized changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device.

3M Touch Systems is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment.

CE Conformity for Europe

The device complies with the requirements of the ECC directive 2004/108/EC with regard to "Electromagnetic compatibility" and 2006/95/EC with regard to "Safety".